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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,333	09/24/2001	Yoshihiro Minami	214183US2	4643

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EXAMINER
MANDALA, VICTOR A

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/960,333	MINAMI, YOSHIHIRO	
	Examiner	Art Unit	
	Victor A Mandala Jr.	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Examiner has noted that the applicant has responded to the election restriction from the last communication response. The applicant has elected Species VIII, of Figure 17-18, claims 1-14 for further examination without traverse. Examiner makes election of Species VIII, of Figure 17-18 final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 5-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The Applicant does not disclose what material the protective film, that prevents silicidation of silicon, is made of or/ and physical characteristics that would be necessary for anyone skilled in the art to recreate the disclosed invention.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant's Admitted Prior Art.

2. Referring to claim 1, a semiconductor device comprising, (Applicant's Admitted Prior Art Figures 19-20): a substrate, (1); a protruding portion, (2), which is formed on the top face of the substrate, (1), and the top of which serves as a dummy element, (2), for controlling a chemical mechanical polishing process, (Applicant's Admitted Prior Art Figure 20 #2 & Page 2 Lines 20-35), and a conductive layer, (7), which is formed on the substrate, (1), so as to have a spiral shape and which serves as an induction element, (Applicant's Admitted Prior Art Page 1 Lines 35-37), wherein said protruding portion, (2), is formed in a region other than a region directly below said conductive layer, (7).

3. Referring to claim 2, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein the substrate, (1), is an SOI substrate, and said protruding portion, (2), is formed of an SOI layer of said SOI substrate, (Applicant's Admitted Prior Art Page 2 Lines 16-21 & the layer directly on the substrate is an insulator, (3), and the layer directly on the protruding portions is an insulator, (4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of U.S. Patent No. 5,918,121 Wen et al.

4. Referring to claim 3, a semiconductor device, wherein the substrate, (Applicant's Admitted Prior Art Figures 19-20), includes an N-type semiconductor layer.

Applicant's Admitted Prior Art discloses all of the claimed matter in claim 4 except for the substrate having a P type dopant, but Werner teaches an silicon based inductor structure, (Wen et al. Figure 6 #16), on a substrate, (Wen et al. Figure 6 #10), in which the substrate, (Wen et al. Figure 6 #10), is doped with a P type dopant, (Wen et al. Col. 5 Lines 15-17). Wen et al. does not disclose the specific usage of a N type substrate, but Wen et al. does disclose that the P type is a preferred type but not limited to.

Wen et al. discloses the claimed invention except for the substrate being of an N type dopant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an N type substrate as an alternative to a P type substrate as claimed in Wen et al.'s invention, since it has been held to be within the general skill of a worker in the art to select a

known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416

It also would be obvious to one skilled in the art to combine the teachings of the Applicant's Admitted Prior Art with the teachings of Wen et al. because the doped substrate increases the quality factor Q, which is advantageous to silicon wire based applications.

5. Referring to claim 4, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein the substrate includes a P-type semiconductor layer.

Applicant's Admitted Prior Art discloses all of the claimed matter in claim 4 except for the substrate having a P type dopant, but Werner teaches an silicon based inductor structure, (Wen et al. Figure 6 #16), on a substrate, (Wen et al. Figure 6 #10), in which the substrate, (Wen et al. Figure 6 #10), is doped with a P type dopant, (Wen et al. Col. 5 Lines 15-17). It would be obvious to one skilled in the art to combine the teachings of the Applicant's Admitted Prior Art with the teachings of Wen et al. because the doped substrate increases the quality factor Q, which is advantageous to silicon wire based applications.

Claim Rejections - 35 USC § 103

Claims 5-7 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of U.S. Patent No. 6,075,257 Song.

6. Referring to claim 5, a semiconductor device comprising, (Applicant's Admitted Prior Art Figures 19-20): a substrate, (1); a protruding portion, (2), which is formed on the top face of

the substrate, (1), and the top of which serves as a dummy element, (2), for controlling a chemical mechanical polishing process, (Applicant's Admitted Prior Art Figure 20 #2 & Page 2 Lines 20-35); a conductive layer, (7), which is formed on the substrate, (1), so as to have a spiral shape and which serves as an induction element, (Applicant's Admitted Prior Art Page 1 Lines 35-37); and a protective film, (4), which is formed between the substrate, (1), and said conductive layer, (7), and prevents silicidation, of said protruding portion, (2).

The Applicant's Admitted Prior Art teaches all of the claimed matter in claim 5, but does not teach a layer that would prevent silicidation of the protruding portions of the silicon substrate. Song does teach a layer above a silicon substrate that prevents the silicidation of a silicon substrate, (Col. 3 Lines 9-10). It would be obvious to one skilled in the art to combine the teachings of the Applicant's Admitted Prior Art and combine them with the teachings of Song's oxide layer on top of the silicon substrate, which prevents silicidation because preventing the silicon substrate from forming into a silicide would allow the silicon substrate to maintain it properties and allow the inductor circuit to have a high quality factor Q and not decrease it through the silicidation process.

7. Referring to claim 6, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein the substrate, (1), is an SOI substrate, and said protruding portion, (2), is formed of an SOI layer of said SOI substrate, (Applicant's Admitted Prior Art Page 2 Lines 16-21 & the layer directly on the substrate is an insulator, (3), and the layer directly on the protruding portions is an insulator, (4).

8. Referring to claim 7, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), which further comprises an extracting wiring, (5), which is connected to said conductive layer, (7 via 8).

9. Referring to claim 10, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein said protruding portion, (2), is formed in a region other than a region directly below said conductive layer, (7).

10. Referring to claim 11, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein the substrate, (1), is an SOI substrate, and said protruding portion, (2), is formed of an SOI layer of said SOI substrate, (Applicant's Admitted Prior Art Page 2 Lines 16-21 & the layer directly on the substrate is an insulator, (3), and the layer directly on the protruding portions is an insulator, (4).

11. Referring to claim 12, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), which further comprises an extracting wiring, (5), which is connected to said conductive layer, (7 via 8).

Claim Rejections - 35 USC § 103

Claims 8-9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art in view of U.S. Patent No. 6,075,257 Song in further view of U.S. Patent No. 5,918,121 Wen et al.

12. Referring to claims 8 and 13, a semiconductor device, wherein the substrate, (Applicant's Admitted Prior Art Figures 19-20), includes an N-type semiconductor layer.

Applicant's Admitted Prior Art discloses all of the claimed matter in claim 4 except for the substrate having a P type dopant, but Werner teaches an silicon based inductor structure, (Wen et al. Figure 6 #16), on a substrate, (Wen et al. Figure 6 #10), in which the substrate, (Wen et al. Figure 6 #10), is doped with a P type dopant, (Wen et al. Col. 5 Lines 15-17). Wen et al. does not disclose the specific usage of a N type substrate, but Wen et al. does disclose that the P type is a preferred type but not limited to.

Wen et al. discloses the claimed invention except for the substrate being of an N type dopant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an N type substrate as an alternative to a P type substrate as claimed in Wen et al.'s invention, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416

It also would be obvious to one skilled in the art to combine the teachings of the Applicant's Admitted Prior Art with the teachings of Wen et al. because the doped substrate increases the quality factor Q, which is advantageous to silicon wire based applications.

13. Referring to claims 9 and 14, a semiconductor device, (Applicant's Admitted Prior Art Figures 19-20), wherein the substrate includes a P-type semiconductor layer.

Applicant's Admitted Prior Art discloses all of the claimed matter in claim 4 except for the substrate having a P type dopant, but Werner teaches an silicon based inductor structure, (Wen et al. Figure 6 #16), on a substrate, (Wen et al. Figure 6 #10), in which the substrate, (Wen et al. Figure 6 #10), is doped with a P type dopant, (Wen et al. Col. 5 Lines 15-17). It would be obvious to one skilled in the art to combine the teachings of the Applicant's Admitted Prior Art

with the teachings of Wen et al. because the doped substrate increases the quality factor Q, which is advantageous to silicon wire based applications.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A Mandala Jr. whose telephone number is (703) 308-6560. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

VAMJ
August 7, 2002

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